Index for Volume 73 of Plant Disease

AUTHOR AND SUBJECT INDEX. Page numbers of illustrations are in parentheses.

Abney, T. S., 740
Abscission, petals, prevented with silver thiosulfate, relation to *Pythium* on geranium, 627
Acremonium typhinum, on blue fescue, endophyte, 81
Actinidia chinensis, Pythium root rot of, 938
Adams, G. C., 754
Adee, E. A., 647
Adkins, C. R., 556
Aerial photography, Cylindrocladium black rot of peanut, field analysis, 42
Agarwal, R., 273
Agastache rugosa, verticillium wilt, first report, 1020
Agrobacterium spp.
—*A. radiobacter*, strain K1026, derivative of strain K84, crown gall biocontrol, 15
—*A. tumefaciens*: on cacao, new host, 638, (638); on grape, biovar 3, hot water treatment for, 242; on peach roots, photo cover, January
Air pollution, sulfur dioxide and ozone, white pine in Wisconsin, 70
Akem, C. N., 68
Albugo ipomoeae-panduratae, on morning glory, white rust, photo cover, January
Alcorn, S. M., 444
Alfalfa
—anthracnose, cultivar resistance, 167
—*Meloidogyne chitwoodi* and *M. hapla* on, cultivar reaction, 391
—Verticillium wilt of, in California, 18,
Alfalfa mosaic virus
—on Swedish ivy: cover photo, February; first report, 183
—on white clover, resistance, 997
Alnus spp., bacterial leaf blight of, 610
Alternaria spp.
—*A. alternata*, on pepper, weevil relation, 170, (172, 173)
—*A. solani*, on potato, fungicide and inoculum effect on severity and yield, 695
Alvarez, A., 654
Alvarez, E., 368
American Phytopathological Society, 1989 annual meeting program, 527
Amphobotrys ricini
—on prostrate spurge, photo cover, January
—on spurge and poinsettia, blight caused by, 74, (74)
Andersen, R. L., 56
Anguiz, R., 199
Anthonomus eugenii, on sweet pepper, relation to internal mold, 170, (172, 173)
Aphis gossypii, citrus tristeza virus vector, in Florida, 552, (554)
Apple
—dieback and canker of, new in Michigan, 508, (509-511)
—European mistletoe of, in Canada, 444
—fire blight of, fruit evaluation in Washington, 917
—pesticide application schedules, integration, 98, (98, 99, 102, 103)
—postharvest diseases of, pressure inoculation for fungal pathogens, 260
—root rot, *Botryodiplodis theobromae*, first U.S. report, 1020
—scab, fenarimol formulation for control, microemulsion, 716
—union necrosis and decline, tomato ringspot virus cause, symptoms, 262, (264)
—virus detection in Fushuai, new cultivar in China, 81
Apricot, dieback of, relation to frost and water-soaking of tissues, 854
Aragaki, M., 661
Armillaria ostoyae
—fruiting in culture, cover photo, September
—new hosts in Mexico, 775
Armitage, C. R., 949
Arny, D. C., 167
Arsenijevic, M., 368
Asai, W., 217
Ascochyta spp.
—*A. fabae*: on faba bean, resistance, 202; in lentil seeds, survival after four years' storage, 762
—*A. rabiei*, on chickpea pod, cover photo, August
Ash, yellows of
—diagnosis using histology and sampling procedures, 432, (434)
—first report in Minnesota, 938
Asparagus
—*Fusarium oxysporum* and *F. moniliforme* on, chloride and nitrogen effect, 736
—rust of, cultivar resistance, 309
Asparagus virus I, first report in Michigan, 273
Aspen, hypoxylon canker, incidence and mortality in New York, 394
Aspergillus flavus
—on corn: kernel infection, field inoculation technique, 313; nitrogen-stressed effect, 556
—on cottonseed, factors affecting aflatoxins on, 489
Atelocauda koae, on *Acacia koa*, cover photo, September
Atopospora betulina, on water birch leaf, cover photo, June
Aujla, S. S., 804
Autrique, A., 514
Avocado, phosphonate concentration, treatment with ethyl phosphonate fungicides, 212
Azzam, O. I., 610

Bach, D. A., 81
Bacillus circulans, on date palm, pathogenicity to seedlings, 353, (354)
Backman, P. A., 464
Bactericide, pseudomonads on bean leaf surfaces controlled by, efficacy, 822, *1017*
Bailey, J. E., 323
Bajet, N. B., 926
Baker, E. H., 879
Bamboo palm (see also palm)
—Phytophthora root rot of, 266
Banana, black sigatoka of, resistance to toxin, 142, (143)
Bandong, J. M., 388, 496
Barkai-Golan, R., 976
Barley
—brome mosaic virus of, in Manitoba, Canada, 195
—brown rust of, Moroccan isolate, abnormal morphology, 28, (28-30)
—kernel discoloration, resistance inheritance, 711
—scab of, seed treatment for eradication of *Fusarium*, 769
—*Verticillium dahliae* on, pathogenicity, 164, (165)
Barley yellow dwarf virus
—oat survey in Illinois, 610
—on oats: cover photo, November; and wheat, in Louisiana, 938
Barnard, E. L., 273
Barnes, L. W., 938
Barnett, O. W., 401, 913
Basarich, L., 368, 610
Bean common mosaic virus, on *Phaseolus* germ plasm collection, propagation effect, 759
Bean pod mottle virus, in South America, 518
Bean yellow mosaic virus, temperature and inoculum concentration role, 405
Bean, G. A., 597
Beede, R., 217
Beet necrotic yellow vein virus
—on beet, cover photo, April
—rhizomania caused by, resistance, 287
Beet yellow stunt virus, purification and characterization, 358
Belmar, S. B., 1004
Bemisia tabaci, virus vector, collection and marking system for epidemiological studies, 765
Benson, D. M., 249
Bentgrass
—creeping, fairy rings, fungicide effect, 127
—fairy ring of, cover photo, February
Berggren, G. T., 144, 437
Bergstrom, G. C., 177
Bermudagrass, spring dead spot of
—causal organism, 933, (934)
—occurrence in southeast USA, 659, (660)
Beupré, C. M-S., 1014
Beute, M. K., 672, 679
Beutel, J. A., 217
Biggs, A. R., 771, 869
Biles, C. L., 879
Biological control
—crown gall with *Agrobacterium* strain K1026, 15
—*Epicoccum purpurascens* for white mold on snap bean, 639
—foliar fungi for johnsongrass, screening test, 459
—*Fusarium oxysporum* to *Passiflora* spp., in Hawaii, 476
—*Pseudomonas putida*, strain PP22, antagonistic to bacteria, 223
—*Puccinia jaceae* for yellow starthistle control, 155
—seed treatment with *Trichoderma*, use of solid matrix priming, 631
—sugar beet seed against *Pythium* by osmopriming, 21
—*Talaromyces flavus* for Verticillium wilt of potato, 230
Bipolaris spp.
—*B. maydis*, on corn: cultivar resistance, 562; race 0, yield and severity relation, 834
—*B. oryzae*, on wild rice: fungicides for in management, 257; propiconazole for control, 588
—*B. setariae*, on pearl millet, resistance in Burkina Faso, 345
—*B. sorokiniana*: on barley, resistance

inheritance, 711; ethylene production, methionine and inorganic salt effect, 398; on snapbean, in Wisconsin, 701; on wheat, root rot association, 953
Bishop, A. L., 368, 610
Blake, J. H., 269
Block, C. C., 1020
Blua, M. J., 317
Blum, A., 468
Boethel, D. J., 144
Boivin, G., 979
Bonman, J. M., 388, 496
Bosque-Perez, N. A., 368
Botryodiplodia theobromae, on apple, root rot, 1020
Botryosphaeria spp.
—*B. dothidea*, on peach, water stress effect, 1000
—*B. obtusa*, on peach buds, infection, 65
Botrytis cinerea
—on greenhouse vegetables, resistance to dichlofluanid, 138
—on tomato, resistance to, 976
Bowen, K. L., 83
Braun, E. J., 326
Brenneman, T. B., 775, 843
Briosia azaleae, on rhododendron, bud blight, cover photo, June
Britton, K. O., 65
Brlansky, R. H., 297
Broccoli, virescence of, mycoplasmalike organism, photo cover, January
Brodeur, L., 979
Brome mosaic virus, isolation in Manitoba, Canada, 195, (198)
Brown, C. R., 957
Brown, G. E., 773
Brown, J. E., 931
Brown, J. F., 52
Brown, J. K., 610
Bruckart, W. L., 155
Bruton, B. D., 170
Bryce, H. M., 931
Buddenhagen, I. W., 368
Burne, J. C., 518
Burr, T. J., 242, 419
Burrows, P. M., 913
Burton, G. W., 345
Byrnes, K. J., 834

Cacao (see also *Theobroma cacao*)
—black pod, Monilia pod rot, and witches'-broom, 601
Cactus, *Dichotomophthora indica* as pathogen of, first report in Arizona, 81
Calvet, C., 699
Campodonico, O. P., 610
Cantaloupe (see Muskmelon)
Capsicum annuum
—pepper weevil and internal mold relation, 170, (172, 173)
—Phytophthora blight of, age-related resistance, 745
—*Phytophthora capsici* on, capsidiol production affected by metalaxyl, 748
—southern blight of, black plastic mulch for control, 931
—tigré disease, whitefly-transmitted geminivirus of, 610
—tomato mosaic virus on, hydroponic management, 570
Cardwell, K. F., 255
Carling, D. E., 730
Carnation, Fusarium wilt of, suppression by composted pine bark and olive pumice, 699
Carpenter, J. B., 78
Carroll, J. E., 183
Carrot
—Cerospora blight, forecasting and fungicides, 979
—root dieback of, *Pythium* association in California, 246
Casper, D. H., 385
Celery, Fusarium wilt, race 2, new in Ontario, 859
Centaurea solstitialis, rust of, biocontrol use, 155
Cercospora spp.
—*C. carotae*, on carrots, forecasting and fungicides, 979
—*C. kikuchii*, on soybean, seed germination and quality affected by, 720
Chamaecyparis lawsoniana, *Phytophthora* pathogenic to, resistance, 791
Chandler, L. D., 170
Chase, A. R., 269, 972
Chastagner, G. A, 331
Cheng, G. Y., 419
Cherry
—leaf spot of, partial resistance, 56
—sweet, X-disease, union aberration association, 899, (900, 901)
Chestnut
—blight, incidence in forest and understory, 123, (125)
—canker protection using hypovirulent conidia of *Cryphonectria*, 840
Chiang, M.-Y., 459
Chickpea, lettuce mosaic virus on, first report, 368
Cho, J. J., 375
Christ, B. J., 148, 695
Christensen, C. M., 501
Chrysalidocarpus lutescens, Phytophthora leaf blight of, etiology and control, 661, (663)
Chrysanthemum, Fusarium wilt of, night temperature effect on disease, 34
Chun, W. W. C., 353
Circulifer tenellus, virescence agent vector, hosts, 850
Citrus
—bacterial spot, spatial distribution in Florida nursery, 297, (300)
—*Phytophthora* spp. in phloem tissue of, changes, 408
—*Phytophthora parasitica* on, seasonal and spatial analysis in Florida, 810
—Phytophthora root rot, fungicide applications, root density and fruit yield, 902
—postbloom fruit drop outbreak, in Florida, 81
—*Xanthomonas campestris* in soils of, survival in nurseries of Maryland and Argentina, 423
Citrus aurantifolia, bacterial canker, in Maldive Islands, 363, (366)
Citrus tristeza virus, aphid transmission, in Florida, 552, (554)
Civerolo, E. L., 297, 363, 423, 552
Cladosporium colocasiae, on taro
—cover photo, November
—first report in U.S.A., 938
Claflin, L. E., 1010
Clark, C. A., 984
Clavibacter michiganense, on corn
—host factors and inoculation time, 339
—leaf freckles, cover photo, April
Claviceps fusiformis, on pearl millet, cytoplasmic male sterility relation, 676
Clover, white
—nematode resistance in interspecific hybrids and species, 567
—viruses of: in Idaho, 906; resistance of hybrids, 997
Clover yellow vein virus, on white clover, 997
Coccomyces hiemalis, on cherries, partial resistance expression, 56
Coffey, M. D., 212
Cohen, E., 807
Cohen, S., 765
Cohen, Y., 206, 751, 994
Colletotrichum spp.
—*C. gloeosporioides*, citrus postbloom fruit drop from, Florida outbreak, 81
—*C. graminicola*: on sorghum, pathotypes and seed transmission, 255; on turf, field resistance to benzimidazole, first report, 775
—*C. trifolii*, on alfalfa, cultivar resistance, 167
Colocasia esculenta, *Cladosporium colocasiae* on, first report in U.S.A., 938
Conservation tillage, pea root disease severity, factors affecting, 884
Container media, web blight of, occurrence in nursery stock, spatial analysis, 249
Corn
—common smut of, gall development, 921, (923)
—*Exserohilum turcicum* on, nomenclature proposed for pathogenic races, 776
—genotype screening for kernel infection by *Aspergillus*, 313
—growth: affected by *Trichoderma*, 493; and disease development, model for instructional purposes, 83
—kernel resistance to *Fusarium moniliforme*, 578
—nitrogen-stressed, aflatoxin contamination increased by, 556
—northern leaf blight of, race 4 virulent on *Ht*N, temperature and light effect, 151, (152, 153)
—rust of, slow-rusting characteristics, gene effect, 114
—sorghum stunt mosaic virus on, outbreak in California and Arizona, 444
—southern corn leaf blight of, resistance sources in tropical cultivars, 562
—southern leaf blight, race 0 and yield effect, 834
—Stewart's bacterial wilt, outbreak in New York, 273
—storage fungi on grain, dry matter loss, 501
—sweet: *Fusarium moniliforme* kernel infection, resistance to, 887; bacterial wilt, host factors and inoculation times, 339
Corn and sorghum, *Pseudomonas fuscovaginae* on, first detection in Berundi, 514
Cornus florida, anthracnose
—acid mist effect, 859
—susceptibility, 590
—tobamovirus from, isolation and characterization, 174
Correll, J. C., 18
Corynespora cassiicola, on tomato fruit, storm-related injury, 1018, (1019)
Cothren, J. T., 25
Cotton
—*Aspergillus* in seeds of, factors, 489
—Phymatotrichum root rot, relation to sorghum postharvest management, 304
Cotty, P. J., 489
Cover color photo
—*Albugo ipomoeae-panduratae* on morning glory, January
—alfalfa mosaic virus on Swedish ivy, February
—*Amphobotrys ricini* on prostrate spurge, January
—*Armillaria ostoyae* fruiting in culture, September
—*Ascochyta rabiei*, on chickpea pod, August
—*Atelocauda koae* on *Acacia koa*, September

—*Atopospora betulina* on water birch, June
—barley yellow dwarf virus, on oats, November
—*Briosia azaleae*, on rhododendron, June
—broccoli virescence from leafhopper, January
—*Cladosporium colocasiae*, on taro, November
—*Clavibacter michiganense*, on corn, leaf freckles, April
—crown gall of peach, January
—Daisy, Gloriosa, beet leafhopper-transmitted virescence agent, October
—fairy rings on bentgrass, February
—*Fusarium graminearum* on wheat, May
—*Fusarium moniliforme*, on corn silk, November
—*Fusarium solani*, on soybean, leaf infection, October
—genetic leaf blotch of nectarine, May
—*Gnomonia platani* on sycamore, March
—*Gymnosporangium nidus-avis* on red cedar branches and witches'-broom, September
—*Leucostoma* spp., on peach tree, gum exudation, November
—palm mosaic virus on Washington palm, March
—*Phoma viburni* on viburnum, March
—*Phomopsis viticola*, on grape, fruit rot, October
—*Phragmidium mucronatum* on rose, May
—*Phymatotrichum omnivorum*, on cotton, mycelia and sclerotia, July
—*Phytophthora cactorum*, on pecan fruit, August
—*Phytophthora nicotianae*, on palm, August
—*Pseudomonas fuscovaginae* on sorghum leaf sheath, June
—*Pseudomonas solanacearum*, on eggplant, December
—*Pseudomonas syringae*: on apple, October; on ginkgo, April
—*Rhizoctonia solani*, AG groups, December
—*Sclerotinia sclerotiorum* on apple, February
—*Sphaerellopsis filum* on *Puccinia sorghi*, on sweet corn, September
—stem canker of soybean, February
—sugar beet rhizomania, April
—sweet potato feathery mottle virus on sweet potato, internal cork disease, June
—tomato spotted wilt virus on pepper, May
—*Tubakia dryina*, on pin oak, December
—tulip breaking virus, April
—*Uromyces transversalis*, on gladiolus, December
—*Verticillium dahliae*, on tobacco, August
—*Xanthomonas campestris* on dry bean, March
Criconemella xenoplax, on peach
—fenamiphos for, 160
—tree short life role, 412
Crinipellis perniciosa, on cocoa
—anatomy and morphology of blisters, 481, (482-484)
—leaves, penetration mode, 478, (479, 480)
Croft, B. J., 651
Cronartium spp., species differentiation using isozyme and protein pattern analysis, 691
—*C. quercuum*, on longleaf pine, field ranking of resistance, 859
Crop protection, course taught at Wageningen Agricultural University, 361
Crop rotation, Cylindrocladium black rot of peanut reduced by, 679
Cryphonectria parasitica (see also *Endothia parasitica*)
—on chestnut, protection with hypovirulent conidia, 840
—vegetative compatibility groups of, on oak in North Carolina, 416
Csinos, A. S., 723
Cucumber, powdery mildew, greenhouse, 1020
Cucumber vein yellowing virus, in Turkey, 610
Cummings Carlson, J. E., 70, 81
Cummins, J. N., 262
Curvularia geniculata, ethylene production, methionine and inorganic salt effect, 398
Cylindrocladium spp.
—*C. clavatum*, on *Araucaria, Eucalpytus*, and *Pinus*, in Florida, 273
—*C. crotalariae*: on peanut, analysis using infrared photography, 42; on peanut, control with fumigation and resistance, 323; on peanut, cultural practices for control, soil temperature relation, 672; on peanut, soil suppression induced with crop rotation, 679; on soybean, first report in Mississippi, 273
Cypress, *Diplodia* and *Seiridium* cankers, water stress effect, 484

Dabydeen, S., 478, 481
Daisy, Gloriosa, beet leafhopper-transmitted virescence agent, cover photo, October
Danesh, D., 856
Dannenberg, M. D., 227
Dannenberger, T. K., 775
D'Arcy, C. J., 610
Davis, M., 819
Davis, R. F., 401
Davis, R. M., 215, 246
Dawson, R., 765
Dekens, R. G., 28
de Milliano, W. A. J., 1020
Dernoeden, P. H., 127
Derrick, K. S., 355
Diagnosis, database for Arizona plant disease records, 702
Diaporthe phaseolorum, on soybean
—cover photo, February
—epidemiology in southeast USA, 464
—severity related to defoliation, 144
Dichotomophthora indica, on cactus, first report in Arizona, 81
Dicko, I. O., 345
Dickstein, E. R., 638
Dillard, H. R., 273
Diplodia pinea, on cypress, water stress effect, 484
Discula spp.
—on dogwood, acid mist effect, 859
—on flowering dogwood, in Maryland, 590
Disease forecasting, potato late blight, mesoscale weather forecasting technique, 618
Disease management
—greenhouse crops, biocontrol and epidemiology, 190, (192, 193)
—pepper to tomato mosaic virus, hydroponic, 570
—recommendations, decisions, 943
—sorghum and cotton root rot, relation, 304
—tomato spotted wilt virus, multidisciplinary, in Hawaii, 375
—white mold of white beans, in Ontario, 281
Dorworth, C. E., 444
Doupnik, B., Jr., 75
Dowler, W. M., 117
Dozier, W. A., Jr., 938, 1020
Drijepondt, S. C., 669
Duarte, V., 984
Dubin, H. J., 273, 472
Duffus, J. E., 765
Dunbar, K. B., 910
Duniway, J. M., 349
Durbin, R. D., 368
Duveiller, E., 514
Dwinell, L. D., 518
Dyer, A. T., 432

Echandi, R., 597
Editorial
—Amador, J., *E Pluribus Unum*, are we ready?, 449
—anonymous, meet the senior editors, 188
—Cole, H., Jr., public funding for research, 783
—Kucharek, T. A. Cooperative Extension work, 868
—Madden, L. V., and P. S. Teng, whither epidemiology, 279
—Mathre, D. E., Richmond welcomes APS, 525
—Moore, L. D., AIBS, new vitality, 708
—Nelson, M. R., biological control, 616
—Sinclair, W. A.: editorial perspective, 3; journal editorship costs and benefits, 96
—Zehr, E. I., disease control innovation, 372
Eggplant, bacterial wilt, cover photo, December
Eggplant mottled dwarf virus, on potato, in Iran, 856
El-Gholl, N. E., 273
Elliott, M. S., 518
Ellis, M. A., 794
Elmer, W. H., 736
Endothia parasitica (see also *Cryphonectria parasitica*)
—on chestnut, blight incidence in forest and understory, 123
Engelbrecht, M. C., 893
Ensign, R. D., 906
Epicoccum purpurascens, biocontrol agent for bean white mold, 639
Epstein, A. H., 846
Eremochloa ophiuroides, panicum mosaic virus on, isolate comparison, 355
Erinle, I. D., 1010
Errata
—vol. 72, no. 7, 1988, 265
—vol. 72, no. 9, 1988, 855
—vol. 73, no. 3, 1989, 938
—vol. 73, no. 10, 1989, 1017
Erwinia spp.
—*E. amylovora*, on apple, fruit evaluation in Washington, 917
—*E. carotovora*, on sugar beet, aggressiveness, 220
—*E. chrysanthemi*, on sweet potato, resistance, 984
—*E. stewartii*, on corn: outbreak in New York, 273; sweet, host factors and inoculation time, 339
Erysiphe spp.
—*E. graminis*, on wheat, fungicides for, 148, 991
—*E. polygoni*, on sugar beet, *Beta maritima* as resistance source, 487
Eshenaur, B. C., 814
Estrada, B. A., 388
Euphorbia spp., *Amphobotrys ricini* on, blight, 74, (74)
Evans, T. A., 273, 444
Eversmeyer, M. G., 227
Exserohilum turcicum, on corn
—nomenclature for pathogenic races proposed, 776
—race 4 virulent on *Ht*N, 151

Eyal, Z., 468
Ezzahiri, B., 549

Fabiani, A. E., 518
Falk, B. W., 358
Falk, S. P., 31, 394
Farias, G. M., 38
Feather, T. V., 78
Fenton, R., 217
Fernandez-Northcote, E. N., 11
Ferreira, J. F., 987
Fertilizer
—chloride and nitrogen effect, asparagus and *Fusarium* affected by, 736
—nitrogen and phosphorus, Xanthomonas blight of *Syngonium*, 972
—nitrogen, phosphorus, and sodium chloride, Pythium root rot of geranium association, 733
—phosphorus, on soybean, mycorrhizae and nematode relation, 730
Fescue, Puccinia rust of, in Oregon, 775
Festuca spp., endophyte of, 81
Fittonia verschaffeltii, bacterial foliar disease, in Florida, 269, (270, 271)
Focus, 4, 97, 274, 280, 373, 450, 526, 617, 709, 860, 939, 1021
Forster, R. L., 1020
Frank, J. A., 148
Frederiksen, R. A., 255
French, D. W., 938
Frisina, T. A., 249
Frossard, P., 133
Fulton, R. H., 601
Fumigants, Cylindrocladium black rot of peanuts controlled by, 323
Fungicides (general) (see also Fungicides, specific)
—fairy rings in creeping bentgrass affected by, 127
—foliar, for wheat leaf diseases, timing effect, 227
—Forecasting application, Cercospora blight of carrot, 979
—integrated pest management for apple orchards, 98
—resistance of vegetables to dichlofluanid, 138
—schedules and inoculum effect on early blight of potato, 695
—Sclerotinia leaf drop on lettuce, 727
—seed treatment, wheat and barley seed for *Fusarium* eradication, 769
—southern stem rot of peanut, control, 723
—synergistic, for field control of field late blight, 751
—wheat: photosynthesis and yield affected by, 25; seed treatment for bunt, 585
Fungicides (specific) (see also Fungicides, general)
—benomyl and dodine, *Venturia inaequalis* resistance to, in Canada, 667
—bitertanol and triadimefon for gladiolus rust, 987, (988)
—carbofuran, maize dwarf mosaic virus in sorghum affected by, aphid transmission, 61
—chlorothalonil and diniconazole, for pod, peg, and stem diseases of peanut, in chemigation, 642
—fenarimol, microemulsion formulation, for apple scab control, 716
—fenpropimorph and flutriafol, on lemon fruit, for sour rot and mold infections, 807
—fosetyl-Al: on avocado, phosphonate concentration after treatment, 212; and metalaxyl, for Phytophthora leaf blight of palm, 661; for Phytophthora root rot of tomato, effectiveness, 215
—imazalil, *Penicillium digitatum* isolates sensitive to, 773
—mancozeb and propiconazole, for fungal brown spot of wild rice, 257
—metalaxyl: *Phytophthora* on pepper, capsidiol production affected by, 748; for Phytophthora root rot of soybean, temperature role, 236
—propiconazole, for wild rice fungal brown spot, 588
—tebuconazole, on peanut diseases, relation to tractor traffic, 843
—triadimefon, for wheat powdery mildew, timing, 991
Fusarium spp.: on asparagus, chloride and nitrogen effect, 736; on wheat and barley seed, seed treatment effect, 769
—*F. culmorum*, root rot association, 953
—*F. graminearum*, on wheat: cover photo, May; root rot association, 953
—*F. moniliforme*: on corn, kernel resistance to, 578; on corn silk, cover photo, November; on sweet corn, kernel infection resistance in inbred lines, 887
—*F. oxysporum*: on banana poka, pathogenicity to *Passiflora* in Hawaii, 476, (477); on bean, in Colorado, 518; on carnation, composted pine bark and olive pumice for suppression, 699; on celery, race 2 in Ontario, new, 859; on chrysanthemum, night temperature effect on disease, 34; on muskmelon, race 2 new to Israel, 183; pathogenic strains, nitrate-nonutilizing mutants and selective medium, 800; on pea, seedling inoculation method, 457, (457); on *Phoenix canariensis*, danger to date production in California, 78, (79, 80); on soybean, *F. solani* role in, in Virginia, 38; on sugar beet, root rot etiology, 879, (881); on watermelon, new resistance source, 518
—*F. solani*, on soybean: leaf infection, cover photo, October; sudden death syndrome, 581, (583)

Gabriel, D. W., 297
Gadoury, D. M., 98
Gaeumannomyces graminis
—on bermudagrass, in southeast USA, 659
—on winter wheat, crop rotation effect, 130
Gardiner, D. C., 34
Gardner, D. E., 476
Garnsey, S. M., 552, 592
Genetic engineering, *Agrobacterium radiobacter* strain K1026 from strain K84, 15
Geotrichum candidum, on lemon, postharvest disease control, 807
Geranium
—bacterial blight of, resistance detection using somaclones, 910
—bacterial wilt of: serology for detection, 875; symptomatology and susceptibility variation, 559
—damping-off and root rot by *Pythium*, seed propagation, 625
—premature death, silver thiosulfate relation with *Pythium*, 627
—Pythium root rot, nitrogen, phosphorus, and sodium chloride association, 733
Gerik, T. J., 304
German, T. L., 375
Gilbertson, R. L., 81
Gilchrist, D. G., 18
Ginkgo biloba, *Pseudomonas syringae* on, leaf spot and stem canker, 368
Gladiolus, rust, fungicides for, 987
Gladstone, L. A., 733
Glomerella cingulata, on pecan, 775
Gnomonia platani, on American sycamore, cover photo, March
Golino, D. A., 850
Gonsalves, D., 262, 375, 592
Gooding, G. V., Jr., 45
Goodman, M. M., 562, 578
Gordon, T. R., 18
Gottwald, T. R., 297, 423
Graduate seminar, survey and evaluation forms, 778
Graham, J. H., 423, 810, 902
Grape
—crown gall of, heat therapy for, 242
—Phomopsis: cane and leaf spot, training systems and pruning practices, 825; fruit rot of, infection time and control, 829
Grau, C. R., 110, 167, 236
Gray, L. E., 290
Griffin, D. H., 31, 394
Griffin, G. J., 38, 42, 123
Griffiths, E., 585
Gritton, E. T., 110
Groth, D. E., 326
Grybauskas, A. P., 127
Guerard, J. P., 246, 819
Gulya, T. J., 504
Gumpf, D. J., 552, 850
Guy, S. O., 238
Gymnosporangium nidus-avis, on red cedar branches and witches'-broom, cover photo, September

Haber, S., 195
Hadar, E., 800
Haglund, W. A., 457
Halisky, P. M., 81
Hamilton, P. B., 578
Hamilton, R. I., 195
Hamm, P. B., 791
Hammar, S. A., 754
Hammond, J., 331
Hannan, R. M., 762
Hanold, D., 183
Hanounik, S. B., 202
Hansen, E. M., 791
Harman, G. E., 631
Harper, D. H., 819
Harrison, S. A., 938
Hartmann, R. W., 375
Harvey, T. L., 61
Hattingh, M. J., 893
Hausbeck, M. K., 625, 627
Havlovic, B. J., 846
Headrick, J. M., 887
Heimann, M. G., 701
Heins, R. D., 625, 627
Helicotylenchus multicinctus, in slash pine in orchard, 518
Hemlock, western, root disease threat in Alaska, 573
Hendrix, F. F., Jr., 65, 701
Hepperly, P. R., 255
Herbicides, glyphosate, effect on *Pyrenophora tritici-repentis* on wheat straw, 647
Hodges, C. F., 398
Holcomb, G. E., 74, 355, 938
Holen, C., 953
Holley, R. N., 562, 578
Honeylocust, Thyronectria canker of, cultivar resistance, 805
Hordeum spp., rust of, physiologic specialization in Israel, 48
Horne, C. W., 943
Horst, R. K., 34
Hotchkiss, M. W., 701
Hu, C.-C., 499
Huang, J.-S., 716
Huang, J. W., 968
Hubbes, M., 691
Huber, D. M., 740
Hunger, R. M., 949

Hunter, J. E., 419
Huot, C. M., 257
Hussey, R. S., 730
Hwang, B. K., 745, 748
Hyalodendron sp., on peanut rust, mycoparasite, in India, 444
Hypoxylon mammatum
—on aspen, in New York, 394
—on *Populus tremuloides* clones, spatial pattern analysis, 31

Iezzoni, A., 754
Industry News, 611
Instructions to authors, 88
Integrated pest management
—apple orchards in northeastern USA, 98, (98, 99, 102, 103)
—Leucostoma canker of peach, in Ontario, 869, (870, 871)
—soybean sudden death syndrome, rotation, tillage, and fumigation effect, 740
Irrigation
—chemigation for control of peanut diseases, 642
—on onion, sour skin, management, 819
Isozyme and protein pattern analysis, *Cronartium* spp. differentiated by use of, 691
Iuli, R. J., 432

Jacobi, W. R., 805
Jafri, A. M., 701
Jarvis, W. R., 190
Jensen, S. G., 75
Johnson, B., 75
Johnson, D. A., 309, 686
Johnson, R., 472
Jones, A. L., 56, 508
Jones, D. A., 15
Jones, J. P., 74
Jones, R. K., 151, 1004

Kackley, K. E., 127
Kaiser, W. J., 759, 762
Kamprath, E. J., 556
Kasrawi, M. A., 435
Katan, J., 800
Katan, T., 800
Katz, B. H., 242
Kaula, G. M., 273
Kelley, J. G. W., 618
Kenigsbuch, D., 206, 994
Kennedy, B. W., 110
Kerr, A., 15, 242
Khush, G. S., 688
Kim, Y. J., 745
Kimchi, M., 484 King, S. B., 676
Klein, R. E., 759
Kline, W. L., 273
Kluyveromyces marxianus, on onion, in Washington and Oregon, 686
Koogle, D. L., 117
Kopeliovitch, E., 976
Kraft, J. M., 884
Kramer, C. L., 227
Krausz, J. P., 142
Kucharek, T. A., 867
Kuhlman, E. G., 968
Kushalappa, A. C., 979

LaMondia, J. A., 107
Langdale, G. W., 130
Larix decidua, *Meria laricis*, first report in Wisconsin, 81
Larsen, A. O., 432
Latham, A. J., 938, 1020
Latorre, B. A., 664
Lavy-Meir, G., 976
Lawrence, G. W., 273
Layton, M. B., 144
Leach, J. E., 1010
Leahy, R. M., 273
Leary, J. V., 353
Leben, C., 565
Lee, E. J., 496
Lee, Y. H., 496
Legard, D. E., 419
Lemon, sour rot and molds on fruit of, fungicides for, evaluation, 807
Lentil, *Ascochyta fabae* in seeds of, survival after four years' storage, 762
Leonard, K. J., 151, 459, 776, 921
Lettuce, leaf drop, fungicides for, 727
Lettuce mosaic virus, first report on chickpea, 368
Leucostoma spp., on peach tree, gum exudation, cover photo, November
—*L. cincta*: on apple, new canker disease in Michigan, 508, (509-511); on peach, integrated control, in Ontario, 869; on peach, pruning technique and callus formation, 771; on peach, virulence difference detection by sample size, 754
Leveillula taurica, on cucumber and tomato, Idaho greenhouse, 1020
Li, Z., 81
Liao, C. H., 223
Liddell, C. M., 246
Lin, D., 691
Lipps, P. E., 991
Littrell, R. H., 642
Liu,, T.-Y. Z., 355
Lizarraga, C., 11
Lockhart, B. E., 321, 856, 938
Lolas, M., 664
Long, D. L., 294, 385
Lophodermium seditiosum, on pine, effect on nursery seedlings in Wisconsin, 798, (799)
Lorenz, E. J., 25
Lucas, L. T., 659
Luhn, C. F., 217
Luley, C. J., 610
Lunden, J. D., 686

MacHardy, W. E., 98
Mackey, B. E., 220
Maczuga, S. A., 695
Madar, Z., 484
Madden, L. V., 991
Maize (see Corn)
Maize dwarf mosaic virus, on sorghum
—carbofuran effect on transmission, aphid relation, 61
—in Zambia, 273
Malathrakis, N. E., 138
Manion, P. D., 31, 394
Manisterski, J., 48
Manuscript preparation, instructions, 88
Maple, red, bark dieback and discolored wood of, bark removal effect, 565
Maraite, H., 514
Marholz, G., 664
Marshall, D., 306
Martensen, A. N., 18
Martin, C., 199
Martin, S. B., 107
Martyn, R. D., 518, 879
Masirevic, S., 368
Matejka, J. C., 408, 727
Matheron, M. E., 408, 444, 727
Mathre, D. E., 164
Matyac, C. A., 323
Mau, R. F. L., 375
Mayhew, D. E., 444
McArdle, A. J., 590
McCarty, L. B., 659
McClary, R. D., 720
McGawley, E. C., 144, 778
McGuire, R. G., 423
McLaughlin, M. R., 906, 917, 997
McLaughlin, R. J., 960
McLean, K. S., 273
McMillan, M. S., 518, 822
McMillan, R. T., Jr., 81, 428
McPhee, W., 260
Meheriuk, M., 260
Melbye, M. E., 775
Melching, J. S., 117
Meloidogyne spp.
—*M. arenaria*, reproduction affected by *Trichoderma*, 493
—*M. chitwoodi*: and *M. hapla* on alfalfa, cultivar reaction, 391; on potato, bucket microplot technique, 63, (64); on *Solanum bulbocastanum*, reproduction, 957
—*M. incognita*: on clover, resistance in interspecific hybrids and species, 567; on soybean, mycorrhizae and phosphorus relation, 730
Melouk, H. A., 68
Meria laricis, on larch in Wisconsin, first report, 81
Meronuck, R. A., 501
Meyer, J., 239
Michailides, T. J., 775
Mihail, J. D., 702
Mihuta-Grimm, L., 769
Miles, Monte R., 711
Milholland, R. D., 814
Miller, C., 297
Miller, M. E., 170
Miller, R. D., 45
Mink, G. I., 81
Mirza, J. H., 701
Mitchell, D. J., 266
Mizuki, M. K., 401
Model
—corn growth and disease development, use in instruction, 83
—disease prediction using mesoscale weather forecasting technique, 618
Moesziomyces penicillariae, on pearl millet, resistance in Burkina Faso, 345
Mojtahedi, H., 391, 957
Molina, G. C., 142
Monoclonal antibodies
—potyviruses on tulip distinguished by, 331
—*Xanthomonas* spp. identified by, 654
Moore, W. F., 273
Moorman, G. W., 733
Morales, F. J., 518
Morton, J. A., 70
Mosher, E. C., 70
Moyer, J. W., 451
Mulrooney, R. P., 444
Munnecke, D. E., 78
Muskmelon
—downy mildew, resistance inheritance, 994
—Fusarium wilt, new race in Israel, 183
—mildew of, races 1 and 2, resistance inheritance, 206
Mycoherbicide, foliar fungi for johnsongrass control, 459
Mycoplasmalike organisms
—ash yellows: diagnostic procedures, 432; first report in Minnesota, 938
—beet leafhopper-transmitted virescence agent, hosts, 850, (852, 853)
—X-disease, union aberration on sweet cherry, rootstock associated disease, 899, (900, 901)
Mycorrhizae, vesicular-arbuscular, on soybean, nematode and phosphorus interaction, 730
Mycosphaerella spp.
—*M. fijiensis*, on banana, resistance to black sigatoka, 142, (143)
—*M. graminicola*, on wheat, fungicides for, 227

Mycotoxin
—aflatoxin: in corn in Mississippi, 313; in cottonseed, factors affecting, 489; in nitrogen-stressed corn, 556
—corn, occurrence in Latin America, 597

Nagata, N. M., 661
Nash, B. L., 273, 416
Nectarine, genetic leaf blotch of, cover photo, May
Nelson, B. D., 504
Nelson, M. R., 610, 616, 702
Nelson, P. E., 34
Nelson, R. L., 110
Nematocides, fenamiphos, for peach tree longevity, 160
Nematodes, bucket microplot technique for studying, 63, (64)
Netzer, D., 183,518
Nevill, W. G., 987
Newton, P. J., 81
Nichols, T. H., 798
Nickell, C. D., 110, 290
Niessen, A. I., 518
Niks, R. E., 28
Noe, J. P., 518
Norman, D., 654
Notteghem, J. L., 133
Nuñez, J. J., 246
Nus, A., 933
Nyczepir, A. P., 412
Nygaard, S. L., 167

Oak
—*Cryphonectria parasitica* on, vegetative compatibility groups, diversity in, 416
—Tubakia leaf spot, cover photo, December
Oats, barley yellow dwarf virus on, in Louisiana, 938
Ohr, H. D., 78
Okie, W. R., 412, 443
Oldfield, G. N., 850
Onion
—sour skin of, irrigation management, 819
—yeast soft rot of, in Washington and Oregon, 686
Ophel, K., 242
Ophiosphaerella herpotricha, on bermudagrass, spring dead spot cause in Kansas, 933, (934)
Oplinger, E. S., 236
Orf, J. H., 110
Orum, T. V., 444
Osborn, M. C., 931
Osburn, R. M., 21
Ostry, M. E., 798
Ouimette, D. G., 212
Overton, P. G., 610
Owens, F. N., 68
Ozaslan, D., 610
Ozaslan, M., 610

Pachymetra chaunorhiza, on sugarcane, resistance screening technique, 651
Pair, J. C., 933
Palm (see also Bamboo palm)
—cadang-cadang-like viroid on, in Soloman Islands, 183
Palm mosaic virus, on Washington palm, cover photo, March
Panicum mosaic virus, on St. Augustinegrass and centipedegrass, isolate comparison, 355
Papaya, purple-stain and internal yellowing, latent periods, 607
Park, K. W., 745
Passiflora spp.,*Fusarium oxysporum* on, pathogenicity in Hawaii, 476, (477)
Pataky, J. K., 339, 834, 887, 921
Pategas, K. G., 570
Patel, M. V., 273
Pathan, M. A., 720
Payne, G. A., 556
Pea
—*Fusarium solani* on, factors affecting root disease severity, 884
—Fusarium wilt of, seedling inoculation method, 457, (457)
Peach
—bud infection by *Botryosphaeria obtusa*, 65
—Cytospora canker: pruning technique and callus formation effect, 771; virulence difference detection by sample size, 754
—dieback of, relation to frost and water-soaking of tissues, 854
—genetic leaf blotch, nectarine host, 443, (443)
—gummosis of, water stress effect, 1000
—ilarviruses of, incidence in California, 217
—Leucostoma canker, integrated control, in Ontario, 869, (870, 871)
—Phytophthora root and crown rots, in Great Lakes region, 794, (795)
—Prunus necrotic ringspot virus on, incidence in South Carolina, 913
—tree: longevity, fenamiphos application for, 160; short life, nematode relations, replant site, 412
Peaden, R. N., 391
Peanut
—Cylindrocladium black rot: control with fumigation and resistance, 323; cultural practice for control, soil temperature relation, 672; soil suppression induced by crop rotation, 679; yield analysis using infrared photography, 42
—disease and pod yield effect, tebuconazole and tractor traffic effect, 843
—disease control recommendations, 943
—pod, peg, and stem diseases, chemigation with chemicals, 642
—southern stem rot, fungicides for control, 723
Peanut stunt virus, on white clover, resistance, 997
Pearson, R. C., 825, 829
Pecan
—anthranose of, 775
—Phytophthora shuck and kernel rot, first report, 701
Pedersen, W. L., 83
Pederson, G. A., 567,997
Penicillium spp.; on lemon fruit, postharvest chemical control, 807
—*P. digitatum*, sensitivity to imazalil, 773
—*P. glaucum*: cytoplasmic male sterility in, ergot relation, 676; resistance to leaf spot, rust, and smut in landraces in Burkina Faso, 345
Pennisetum glaucum, bacterial leaf stripe, cause, 1010, (1011)
Pepper veinal mottle virus, tobacco vein mottling virus compared to, 336
Pera, J., 699
Percich, J. A., 257, 588
Peridermium harknessii, on ponderosa and Scots pine, in Missouri, 610
Peronosclerospora sorghi, on sorghum:
—epidemic in Nebraska, 75
—panicle development effect in Zimbabwe, 1020
Perring, T. M., 317
Perry, B. W., 42
Perry, R., 765
Pfeiffer, C. M., 81
Pfender, W. F., 647
Phakopsora pachyrhizi, on soybean, leaf wetness factors, 117
Phalaris canariensis, *Septoria triseti* on, new leaf mottle disease, 859
Phaseolus vulgaris
—bacterial brown spot, modified bean pod assay for strain detection, 419
—*Bipolaris sorokiniana* on, in Wisconsin, 701
—Fusarium wilt of, in Colorado, 518
—pseudomonads on leaf surfaces, bactericide assays, 822, *1017*
—white mold: biocontrol with *Epicoccum*, 639; management, 281, (282, 283)
Phialophora gregata on soybean
—continuous cropping effect, 846
—physiologic specialization, 290
—resistance to, 110
Phoenix spp.
—*P. canariensis*, Fusarium wilt and dieback of, danger to date production in California, 78, (79, 80)
—*P. dactylifera*, *Bacillus circulans* on seedlings of, pathogenicity, 353, (354)
Phoma viburni, on viburnum, cover photo, March
Phomopsis spp.
—*P. obscurans*, on strawberry, growth factors and disease development effects, 814, (814)
—*P. viticola*, on grape: fruit rot, cover photo, October; time of infection and control, 829; training systems and pruning practices, 825
Phragmidium mucronatum, on tea rose, cover photo, May
Phymatotrichum omnivorum, on cotton
—cover photo, July
—relation to sorghum postharvest management, 304
Phytophthora spp.: on peach, root and crown rots in Great Lakes region, 794, (795); on Port-Orford-cedar, resistance testing, 791
—*P. arecae*, on bamboo palm, root rot, 266
—*P. cactorum*: on pecan fruit, cover photo, August; on pecan fruit, first report, 701; on strawberry, first report in eastern North America, 183
—*P. capsici*, on pepper: age-related resistance, 745; metalaxyl effect on capsidiol, 748
—*P. citrophthora*, on citrus, phloem colonization, temporal changes, 408
—*P. infestans*, on potato, control with synergistic fungicides, 751
—*P. megasperma*, on soybean, metalaxyl and temperature effect, 236
—*P. nicotianae*: on golden-fruited palm, etiology and control, 661, (663); on palm, leaf blight, cover photo, August
—*P. parasitica*: on citrus, fungicide applications and feeder root density and yield, 902; on citrus, phloem tissue colonization, temporal changes, 408; on citrus, seasonal and spatial analysis in Florida, 810; on jojoba, leaf blight in Arizona, 444; on tomato, fosetyl-Al effect on, 215; on tomato, pre- and postinoculation water stress effect, 349
Pine
—longleaf, fusiform rust of, field ranking of resistance, 859
—nursery seedlings, Lophodermium needle cast, 798, (799)
—ponderosa and Scots, pine-pine gall rust, in Missouri, 610
—slash: *Helicotylenchus multicinctus* on, in Georgia, 518; *Rhizoctonia solani* in nuseries, recovery, 968
Pineapple, pink disease of, extended latent

periods, 607, (608)
Pinkerton, J. N., 63, 391
Pinus strobus, sulfur dioxide and ozone effect on, in Wisconsin, 70
Pirone, T. P., 336
Pistachio, Septoria leaf spot, first report in Arizona, 775
Plectranthus australis, alfalfa mosaic virus on, first report, 183
Ploetz, R. C., 266
Pohronezny, K., 1018
Polymyxa betae, beet necrotic yellow vein virus vector, rhizomania, 287
Populus tremuloides, hypoxylon canker of, spatial pattern in sampling in clones, 31
Postharvest pathology
—fungicides for *Penicillium digitatum* on citrus, 773
—lemon sour rot and molds of, fungicides for, 807
—pome fruit fungal pathogens, pressure inoculation technique, 260
—stored corn, dry matter loss, 501
—tomato fruit, storm-related injury, 1018
Potato
—early blight of, fungicide and inoculum effect on severity, 695
—eggplant mottled dwarf virus on, in Iran, 856, (857)
—late blight: control by synergistic fungicides, 751; disease prediction using weather forecasting technique, 618
—*Pseudomonas solanacearum* on, strains, 960
—*Rhizoctonia solani* of, AG, pathogenicity in Peru, 199
—root-knot nematode, reproduction, 957
—Verticillium wilt of, biocontrol with *Talaromyces*, 230
Potato viruses X and Y, detection in sap extracts, use of NCM-ELISA, 11
Potato yellow dwarf virus, occurrence in Minnesota, 321, (322, 323)
Powell, N. L., 42
Powers, H. R., Jr., 691
Pratylenchus penetrans, on strawberry, *Rhizoctonia* relation, 107
Prescott, J. M., 585
Pretorius, Z. A., 669
Prey, A. J., 70
Proffer, T. J., 508
Provvidenti, R., 183, 375
Prune dwarf virus, on peach, incidence in California, 217
Prunus necrotic ringspot virus, on peach:
—incidence in California, 217
—incidence in South Carolina, 913
Pscheidt, J. W., 825, 829
Pseudomonas spp.
—*P. avenae*, on pearl millet, leaf stripe cause, 1010, (1011)
—*P. cepacia*, on onion, management by irrigation, 819
—*P. fuscovaginae*: on maize and sorghum, detection in Berundi, 514; on rice, sheath brown rot, in Madagascar, 133; on sorghum leaf sheath, cover photo, June
—*P. glumae*, on rice, in Latin America, 368
—*P. putida*, biocontrol agent, antagonism of, 223
—*P. solanacearum*: from potato, strain diversity in Florida, 960; from tobacco, phenotypic features, numerical analysis, South Africa, 893
—*P. syringae*: on apple, cover photo, October; on apricot and peach, relation to frost and water-soaking of tissues, 854; on bean, bactericide assays, 822, *1017*; on deciduous fruit trees, systemic infection, 784, (784-786); on *Ginkgo*, leaf blight and stem canker, cover photo, April; on *Ginkgo*, leaf spot and stem canker, 368; on snap bean, modified bean pod assay for strain detection, 419; on sunflower, in Yugoslavia, 368; on tobacco, resistance evaluation, 964, (965); two new hosts for, 368
Pseudoperonospora cubensis, on muskmelon, resistance inheritance, 994
Pseudoplusia includens, on soybean, defoliation by, relation to stem canker, 144
Puccinia spp.
—*P. arachidis*, mycoparasite on, new in India, 444
—*P. asparagi*, on asparagus, resistance to, 309
—*P. graminis*: races in USA and Mexico, in 1987, 385; on tall fescue, in Oregon, 775
—*P. hordei*: Moroccan isolate, abnormal morphology, 28, (28-30); physiologic specialization in Israel, 48
—*P. jaceae*, on yellow starthistle, host range, 155
—*P. melanocephala*, on sugarcane, races, 183
—*P. polysora*, on corn, slow-rusting, gene effect, 114
—*P. recondita*: gene *Lr*34, resistance conferred by, 669; on wheat, fungicides for, 148, 227; on wheat, races and virulence in China, 499; on wheat, resistance inheritance, 549; on wheat, urediniospore source, detection and viability, in Louisiana, 437; on wheat, virulence in cultivars in Texas, 306;on wheat, virulence in USA in 1987, 294
—*P. striiformis*, on wheat, postulated genes for resistance, 472
—*P. substriata*, on pearl millet, resistance in Burkina Faso, 345
Purdy, L. H., 638
Pusey, P. L., 1000
Pyrenophora tritici-repentis, on wheat:
—fungicides for, 227
—straw, herbicide effect on pseudothecia, 647
Pyricularia spp.
—*P. grisea*, on pearl millet, resistance in Burkina Faso, 345
—*P. oryzae*, on rice: partial resistance, race-specific, 496, (498); resistant cultivars, 388
Pythium spp., on carrot, dieback association in California, 246
—*P. ultimum*: on geranium, damping-off and root rot from, 625; on geranium, nitrogen, phosphorus, and sodium chloride relation, 733; on geranium, premature death and silver thiosulfate relation, 627; on kiwi, root rot, 938; on sugar beet, osmopriming seed effect, 21

Raid, R. N., 183
Ramundo, B. A., 1010
Rand, R. E., 701
Randles, J. W., 183
Rao, V. P., 676
Rasmusson, D. C., 711
Rattan, G. S., 804
Reddick, B. B., 174
Reddy, P. M., 444
Reed, R. R., 358
Reeleder, R. D., 639
Regner, K. M., 686
Reilly, C. C., 412, 443, 701, 775
Renfro, B. L., 926
Resistance
—alfalfa: to anthracnose, 167; to root-knot nematode, 391
—asparagus to rust, variation, 309
—barley to kernel discoloration, 711
—beans to rust, new races, 428
—corn to southern leaf blight, tropical sources, 562
—corn to southern rust, slow-rust characteristics, 114
—faba bean to Ascochyta blight, 202
—honeylocust to Thyronectria canker, 805
—muskmelon: to Downey mildew, inheritance, 994; to powdery mildew, races 1 and 2, 206
—peanuts to Cylindrocladium black rot, 323
—pepper to *Phytophthora*, age relation, 745
—Port-Orford cedar to *Phytophthora*, testing, 791
—potato to root-knot, 957
—rice: to bacterial blight, inheritance, 688; to leaf and neck blast, tropical cultivars, 388
—soybean to brown stem rot, 110
—sugar beet: to beet necrotic yellow vein virus, 287; to *Erwinia carotovora*, 220; to powdery mildew, sources, 487
—sugarcane to Pachymetra root rot, screening technique, 651
—sweet corn: to kernel infection by *Fusarium*, 887; to Stewart's wilt and Goss's wilt, 339
—sweet potato to bacterial root and stem rot, 984
—tobacco to angular leaf spot, 964
—tomato: *Botrytis cinerea*, 976; to tomato yellow leaf curl virus, 435
—wheat: to leaf rust, 549; to leaf rust, *Lr*34 gene, 669; to soilborne mosaic virus, 949; to stripe rust, postulated genes, 472
—white clover: to root-knot nematodes, 567; to viruses, 997
Reviewers, acknowledgment of, 90
Reymond, S. T., 917
Rezabek, C. L., 70
Rhizoctonia spp.: on azalea, web blight spatial analysis in container-grown stock, 249; binucleate, on strawberry, nematode and temperature relation, 107; on rice in Texas, rotation crop effect, 1004, (1006)
—*R. solani*: AG and pathogenicity on potato in Peru, 199; cultures, cover photo, December; in forest nurseries, recovery, 968; on peanut, fungicides for control, 723; in soil, isolation media, 1014
Rhizopus arrhizus, on sugar beet, root rot in Wyoming, 518
Rhodehamel, N. H., 368
Rice
—bacterial blight, resistance inheritance, 688
—bacterial sheath brown rot of, in Madagascar, 133
—grain discoloration, in Latin America, 368
—japonica cultivars, race-specific partial resistance to blast of, 496
—leaf and neck blast, resistance in tropical cultivars, 388
—*Rhizoctonia* spp., rotation effect, 1004, (1006)
Ristaino, J. B., 349
Ritchie, D. F., 160
Roberts, J. J., 294, 385
Roberts, R. G., 917
Robertson, L. D., 202
Roelfs, A. P., 294, 385, 499, 549
Rohrbach, K. G., 607
Roistacher, C. N., 363
Roncadori, R. W., 730
Roose, D., 273
Rosenberger, D. A., 98, 262

Roth, L. F., 791
Rothrock, C. S., 130
Rott, P., 133
Rowe, R. C., 5, 230
Roy, K. W., 273
Royer, M. H., 117, 618
Rufty, R. C., 45, 964
Rupe, J. C., 581
Rush, C. M., 304, 879
Russin, J. S., 144
Russo, J. M., 618
Rycyk, F., Jr., 610

Sahu, R. K., 688
Salazar, L. F., 451
Sammons, B., 401
Samoucha, Y., 751
Sandler, H. A., 810, 902
Santamour, F. S., Jr., 590
Santo, G. S., 63, 391, 957
Schafer, J. F., 294
Schilder, A. M. C., 177
Schizaphis graminum, maize dwarf mosais virus vector, in sorghum, carbofuran effect, 61
Schoulties, C. L., 273
Schreiber, M. M., 740
Schroth, M. N., 21
Schubert, T. S., 273
Schuerger, A. C., 570
Schwartz, H. F., 518, 822
Sciblia, K. L., 840
Sclerotinia spp.
—*S. minor*, sclerotium viability and survival, passage through farm animals, 68
—*S. sclerotiorum*: on apple, cover photo, February; on lettuce, fungicides for, 727; *S. minor* association, in sunflower basal stem rot, resistance methods, 52; on snap bean, biocontrol with *Epicoccum*, 639; on sunflower, resistance sources in North Dakota, 504; on white beans, management in Ontario, 281, (282, 283)
Sclerotium rolfsii
—on peanut, fungicides for control, 723
—on pepper, black plastic mulch for control, 931
Scott, G. E., 114, 313
Scott, H. A., 518
Scott, S. W., 913
Sedun, F. S., 52
Seifers, D. L., 61
Seiridium cardinale, on cypress, water stress effect, 484
Senechal, N. P., 1020
Septoria spp.
—*S. nodorum*, on wheat, fungicides for, 148
—*S. pistaciarum*, on pistachio, first report in Arizona, 775
—*S. triseti*: on canarygrass, leaf mottle, new disease, 859; on wheat, canopy temperature and host response, 468
Sequeira, L., 960
Shain, L., 840
Shane, W. W., 775
Sharma, I., 804
Sharma, N. K., 518
Sharma, U., 647
Sharpe, R. R., 412
Shattuck, V. I., 208
Shaw, C. G., III, 573, 775
Sherwood, J. L., 949
Shew, H. D., 239
Shoemaker, P. B., 239
Sholberg, P. L., 260, 667
Shrestha, J. K., 273
Sidebottom, J. R., 672, 679
Silbernagel, M. J., 518
Silphium perfoliatum, *Pseudomonas syringae* on, 368
Simmondsia chinensis, Phytophthora leaf blight, in Arizona, 444
Simone, G. W., 269, 1018
Sinclair, J. B., 604, 720
Sinclair, W. A., 432
Singh, D. V., 273
Singh, S. D., 1020
Singleton, L. L., 68
Sjulin, T. M., 56
Smith, E. F., 464
Snacken, F., 514
Snow, J. P., 144, 437
Solel, Z., 484
Sorghum
—anthracnose of, pathotypes and seed transmission, 255
—downy mildew: epidemic in Nebraska, 75; panicle growth, in Zimbabwe, 1020
—maize dwarf mosaic virus of, in Zambia, 273
—postharvest management, relation to cotton root rot, 304
Sorghum halepense, biocontrol of, foliar fungi for, 459
Sorghum stunt mosaic virus, on corn, outbreak in California and Arizona, 444
Soybean
—bacterial pustule of, survival in debris and seed, 326
—brown stem rot of: continuous cropping effect on yield and disease, 846; physiologic specialization, 290; resistant, germ plasm evaluation, 110
—*Cercospora kikuchii* on, seed germination and quality affected by, 720
—Cylindrocladium black rot of peanut suppressed by rotation with, 679
—*Fusarium oxysporum* and *F. solani* on, roles of, in Virginia, 38
—Phytophthora root and stem rot of, metalaxyl for, temperature effect, 236
—production in tropics, red leaf blotch and leaf rust, 604, (605)
—red crown rot of, first report in Mississippi, 273
—root-knot nematode, interaction with mycorrhizal fungi and phosphorus, 730
—rust of, leaf wetness factors, 117
—stem canker: epidemiology in southeast USA, 464; severity related to defoliation, 144
—sudden death syndrome: *Fusarium solani* from, 581, (583); rotation, tillage, and fumigation effect, 740
Sphaerellopsis filum, on *Puccinia sorghi* on sweet corn, cover photo, September
Sphaerotheca fuliginea, on muskmelon, races 1 and 2, resistance inheritance, 206
Spink, D. S., 230
Spiroplasma, on corn, occurrence in Mexico, different elevations, 926, (927)
Spiroplasma kunkelii, on corn, occurrence in Mexico at different elevations, 926, (927)
Spruce, Sitka, root disease threat in Alaska, 573
Squash, yellow summer, virus survey of, in South Carolina, 401
Sreenivasan, T. N., 478, 481
Stambaugh, W. J., 416
Stansly, P. A., 518
Stanwood, P. C., 762
Stasz, T. E., 631
Stavely, J. R., 428
Steadman, J. R., 428
Stenotaphrus secundatum, panicum mosaic virus on, isolate comparison, 355
Stephens, C. T., 273, 559, 625, 627, 875, 910
Stevens, C., 931
Stevenson, W. R., 701
Stobbs, L. W., 208
Strawberry
—black root rot, nematode, temperature, and *Rhizoctonia* relation, 107
—crown rot of, first report in eastern North America, 183
—leaf blight of, growth factors and disease development, 814, (814)
Strider, P. V., 590
Stubbs, R. W., 472
Su, M.-Y., 398
Subba Rao, K. V., 437
Sugar beet
—bacterial vascular necrosis and rot, 220
—Fusarium root rot of, etiology in Texas, 879, (881)
—powdery mildew resistance source, *Beta maritima* accessions, 487
—rhizomania, resistance, 287
—Rhizopus root rot of, in Wyoming, 518
—seed germination, Pythium damping-off and seed osmopriming, 2!
Sugarcane
—Pachymetra root rot of, screening technique for resistance, 651
—rust races of, in Florida, 183
Sumner, D. R., 642, 843
Sundaram, S., 938
Sunflower
—bacterial leaf spot and blight, in Yugoslavia, 368
—basal stem rot of, resistance to, comparison of methods, 52
—*Pseudomonas syringae* on, 368
—Sclerotinia head rot, in North Dakota, 504
Sung, N. K., 748
Suparyono, 339
Suppressive soil, peanut root rot, crop rotation effect, 679
Sutton, T. B., 716
Sweet potato
—bacterial root and stem rot, resistance, 984
—viruses and viruslike diseases of, 451, (452, 453)
Sweet potato feathery mottle virus, cover photo, June
Syngonium podophyllum, Xanthomonas blight, fertilizer effects, 972

Tachibana, H., 110, 846
Tainter, F. H., 5
Talaromyces flavus, biocontrol agent for *Verticillium* on potato, 230
Taylor, A. G., 631
Teviotdale, B. L., 819
Thakur, R. P., 151, 676, 921
Thapa, B. R., 273
Theobroma cacao (see also Cacao)
—*Agrobacterium tumefaciens* on, new host, 638, (638)
—witches'-broom of: anatomy and morphology of blisters, 481, (482–484); penetration of leaves, 478, (479, 480)
Thielaviopsis basicola, on tobacco, occurrence in North Carolina, 239
Thyronectria austro-americana, on honeylocust, cultivar resistance, 805
Tilletia indica
—teliospores of, estimation in field soil, 804
—on wheat: chemical seed treatments for, 585; first report in Nepal, 273, *938*
Timmer, L. W., 81, 810, 902
Tisserat, N. A., 933
Tobacco
—angular leaf spot, genotype resistance, 964, (965)
—bacterial wilt, phenotypic features and numerical analysis, in South Africa, 893

—black root rot of, occurrence in North Carolina, 239
—Verticillium wilt, limiting factor in Chile, 664, (665)
Tobacco etch and tobacco vein mottling viruses, effect on burley genotypes, 45
Tobacco vein mottling virus, pepper veinal mottle virus compared to, 336
Toler, R. W., 273, 938
Tomato
—*Botrytis cinerea* on, resistance, 976
—mycoplasmalike organism on, in Kuwait, 701
—Phytophthora root rot of: fosetyl-Al for, 215; pre- and postinoculation water stress effect, 349
—powdery mildew, greenhouse, 1020
—target spot, post-harvest, storm-related injury, 1018, (1019)
Tomato mosaic virus
—on dogwood, characterization, 174
—on pepper, management, 570
Tomato ringspot virus, on apple, union necrosis and decline caused by, 262, (264)
Tomato spotted wilt virus
—on celery and weeds, first report in Argentina, 859
—management, multidisciplinary approach in Hawaii, 375, (376, 377, 380, 381)
—on pepper, cover photo, May
Tomato yellow leaf curl virus, on tomato, resistance inheritance, 435
Trichoderma spp., corn growth and nematode reproduction affected by, 493
—*T. harzianum*, bioseed treatment, solid matrix priming combination, 631
Tropical fruit diseases, extended latent periods, 607, (608)
Tropical plant pathology symposium, international problems, 592
Tu, J. C., 281, 405
Tuinier, J., 559, 875
Tulip breaking virus
—field transmission, related potyviruses, 331
—on tulip, cover photo, April
Turfgrass, anthracnose, resistance to benzimidazole, 775
Turnip mosaic virus, strains in Ontario, Canada, 208

Uromyces spp.
—*U. appendiculatus*, pathogenic variability in North America, 428
—*U. transversalis*, on gladiolus, fungicides for, 987, (988); cover photo, December
Ustilago maydis, on corn, gall development, 921
Uyemoto, J. K., 217, 899

Valent, B., 496
Valverde, R. A., 938
Van Dyke, C. G., 459
Van Ommeren, A., 28
Vegetables, greenhouse, *Botrytis cinerea* on, fungicide resistance, 138
Venturia inaequalis
—on apple, fenarimol microemulsion formulation for control, 716
—benomyl and dodine resistance, in Canada, 667
Verticillium spp.
—*V. albo-atrum*, on alfalfa, wilt in California, 18
—*V. dahliae*: on *Agastache rugosa*, first report, 1020; on barley, pathogenicity, 164, (165); on potato, *Talaromyces* as biocontrol agent, 230; on tobacco, cover photo, August; on tobacco, limiting factor in Chile, 664, (665)
Vicia faba, blight of, resistance, 202
Vick, B. A., 504
Videodisc technology, history and educational application, 5
Vigouroux, A., 854
Vincelli, P. C., 518, 1014
Viruses
—cross-protection techniques for control, in tropics, 592
—forage legume infection, detection in Idaho, 906
—whitefly-borne, collection and marking system for epidemiological studies, 765
—on yellow summer squash, South Carolina survey, 401
Viscum album, on apple, in Canada, 444
Volin, R. B., 1018
Von Qualen, R. H., 740

Wannamaker, M. J., 964
Warham, E. J., 585
Warnock, D., 667
Watermelon, *Fusarium oxysporum* race 2, source, 518
Weintall, C., 183
Wells, D. W., 74
Wells, H. D., 345
Welty, R. E., 775
Wetter, C., 570
Wheat
—barley yellow dwarf virus on, in Louisiana, 938
—brome mosaic virus of, in Manitoba, Canada, 195
—foliar pathogens of, fungicides for, timing effect, 227
—fungal leaf and spike diseases, in New York, survey, 177
—karnal bunt of: chemical seed treatments for, 585; first report in Nepal, 273, *938*
—leaf rust: cultivar relation in Texas, 306; gene *Lr*34 for resistance, 669; races and virulence in China, 49; resistance in, inheritance, 549; virulence in USA, 294
—mildew, Septoria, and leaf rust epidemics on, fungicides for, 148
—photosynthesis and yield of, fungicide effect, 25
—powdery mildew, fungicides, timing, 991
—root rot, fungi, 953
—scab of, seed treatment for eradication of *Fusarium*, 769
—Septoria blotch, canopy temperature and host response, 468
—stripe rust, postulated genes in selected wheats, 472
—take-all of, crop rotation effect, 130
—tan spot of, pseudothecial formation in straw, herbicide effect, 647
Wheat soilborne mosaic virus, resistance, 949
Wheat spindle streak mosaic virus
—first report in Delaware, 444
—occurrence in Texas, 938
Wheeler, J. E., 81
White, D. G., 834
White, J. F., Jr., 81
Whitney, E. D., 220, 287, 487
Widrlechner, M. P., 1020
Wilcox, W. F., 183, 794
Wilcoxson, Roy D., 711
Wilder-Ayers, J. A., 984
Wild rice, fungal brown spot of
—fungicides in management, 257
—propiconazole rates, 588
Wilkins, D. E., 884
Williams, W. P., 493
Willmot, D. B., 290
Wilson, J. H., 63
Wilson, J. P., 345
Windels, C. E., 953
Windham, G. L., 493, 567
Windham, M. T., 493
Windsor, J. C., 444
Wyatt, S. D., 759
Wysong, D., 75

Xanthomonas campestris
—on alder, leaf blight, 610
—on citrus: spatial distribution in Florida nursery, 297, (300); survival in nursery soils, in Maryland and Argentina, 423
—on dry bean, cover photo, March
—on *Fittonia verschaffeltii*, leaf disease in Florida, 269, (270, 271)
—on geranium: resistance detection using somaclones, 910; serology for detection, 875; symptomatology and susceptibility variation, 559
—on lime, in Maldive Islands, 363, (366)
—monoclonal antibodies for identification, 654
—on rice, resistance inheritance, 688
—on soybean residue, survival, transmission, and development, 326
—on *Syngonium podophyllum*, fertilizer effects, 972

Yilmaz, M. A., 610
Yokomi, R. K., 552
Yorston, J. M., 667
Young, D. J., 775
Yudin, L. S., 375

Zeigler, R. S., 368
Zettler, F. W., 518
Zhou, T., 639
Zitko, S. E., 810, 902
Zongo, J.-D., 345
Zucchini yellow mosaic virus, on cantaloupe, yield effect, 317, (318)
Zummo, N., 114, 313